

EXHIBIT 2  
TO DECLARATION OF  
ANDREW P. BLEIMAN, ESQ.

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**Expert Report of  
Dr. Ernesto Staroswiecki,  
Ph.D., P.E.**

**UNITED STATES DISTRICT COURT  
WESTERN DISTRICT OF WASHINGTON AT TACOMA**

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HP Tuners, LLC,		:
	Plaintiff,	:
	v.	:
		:
		:
Kevin Sykes-Bonnet,		:
Syked ECU Tuning, Inc		:
John Martinson,		:
	Defendants.	:

**Expert Report of  
Dr. Ernesto Staroswiecki, Ph.D., P.E.**

Prepared for

HP Tuners, LLC.

Prepared by  
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April 22, 2019  
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**1. INTRODUCTION**

1. My name is Dr. Ernesto Staroswiecki. I am a Senior Managing Engineer at Exponent, Inc. in the Electrical Engineering and Computer Science practice.

2. **Assignment and Background:** I have been retained by counsel for HP Tuners, LLC (HPT) as an expert to evaluate, assess, and form opinions regarding whether the Defendants Mr. Sykes-Bonnet, Mr. Martinson, and Syked ECU Tuning Inc. (Syked) had access to and utilized intellectual property (IP) claimed by HPT as trade secrets or otherwise protected property. In addition, I was asked by HPT to review Syked’s source code and other documents produced during the instant action in order to assist in forming my opinions; and if any actions or omissions by Syked affected my ability to conduct my investigation.

3. **Facts and Data Considered:** In order to form my opinions, I have relied on my training, education, experience, computer science and engineering judgment. I reviewed certain produced documents and source code from Syked and HPT products. I spoke with certain HPT employees, and I conducted academic research. The materials I reviewed and individuals with whom I spoke are listed in Attachment A.

4. **Supplementation:** I reserve the right to modify or supplement my report in light of additional relevant information, expert reports, deposition testimony, and documents, or based on any critique of the report.

5. **Organization:** My report is organized as follows: This section is an introduction to the report. Section 2 contains a summary of my opinions and their bases. Section 3 explains some of my qualifications as an expert for this matter. Section 4 provides a brief description of the technology involved in this case system. The remaining sections provide my opinions and their bases in detail. I finally present the conclusions to this report in the final section.

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**2. SUMMARY OF OPINIONS**

**2.1. Syked had access to IP that HPT claims are trade secrets.**

6. Several logs of conversations between Syked and third parties show some of this IP being shared during these conversations. Furthermore, there is evidence of Syked undertaking actions (e.g. producing keys for HPT hardware) that likely require them to be in possession of this IP. Additionally, some of this HPT IP is present in Syked source code.

**2.2. Syked disclosed to third parties IP that HPT claims are trade secrets.**

7. Conversation logs show Syked providing HPT hardware keys to third parties, as well as sharing with third parties source code identical to that present within HPT’s software products.

**2.3. Syked used in their products IP that HPT claims are trade secrets.**

8. Some of the source code present on different versions of the Syked software products is extremely similar or identical to source code from HPT’s software product. Furthermore, there is evidence that, for some period of time, Syked software tools were able to handle HPT’s hardware, which would require Syked to use HPT’s communication protocols, which is part of the IP claimed as a trade secret.

**2.4. Syked benefitted from access to HPT’s trade secrets.**

9. Even if code was not literally copied, having access to HPT’s source code could have provided Syked with, among other things, proven working strategies, a performance baseline, suggestions on how to address problems, access to algorithm or vehicle manufacturer data, etc., that could save Syked a significant amount of research and development time and resources that would have been required to achieve a product in its current form.

**2.5. Actions and omissions by Syked hampered my work.**

10. Several documents critical to my investigation were produced very late in the process, not allowing me the time to properly analyze them or to inform the following steps. For example, while my inspection of Syked source code was scheduled to take place during

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three days, from April 3<sup>rd</sup> through April 5<sup>th</sup>, 2019, the source code that was requested was only produced after one and a half days, after noon of April 4<sup>th</sup>, with some code produced even later. A changeset that was critical to guide the software inspection was only produced during the evening of April 3<sup>rd</sup>, once the inspection was already started, and consisted of over 700 pages.

**3. QUALIFICATIONS**

11. I am a Professional Electrical Engineer licensed by the state of California. I am also a Certified Software Quality Engineer accredited by the American Society for Quality. I received a Bachelor of Science degree in Computer Engineering, and a Bachelor of Arts degree in Mathematics and Statistics, both from University of Maryland, Baltimore County. I received a Master of Science degree and a Doctor of Philosophy degree, both in Electrical Engineering, from Stanford University.

12. I have previously worked for software development companies and internet content provider companies as a software developer and manager, both for commercial software and internal tool development. I have also worked as a hardware designer, both at the integrated circuit and board level, for companies that produce components and entire systems for the consumer electronics industry.

13. I am currently a Senior Managing Engineer within Exponent’s Electrical Engineering and Computer Science practice. My work routinely involves identifying, managing, and executing all aspects of failure analyses and root cause analyses for electrical systems, including consumer electronics, vehicles, telecommunications, utilities, and industrial equipment. I also design, manage, and execute reliability and product qualification test plans for clients involved in the same industries. I have also reviewed and analyzed software and firmware and their development methods for many different systems, including safety critical systems.

14. I have previously analyzed vehicle-related software, both software that runs within a vehicle and its controllers, as well as software to communicate with vehicles from

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outside of the vehicle. I have worked on and managed projects involving vehicle networks and means to plug in to them externally. Furthermore, I have previously been an expert in trade secret misappropriation and other IP litigation involving software products and software/hardware systems.

15. A copy of my professional CV is attached as Attachment B. I am being compensated for my work on this matter at an hourly rate of \$410.00. I have been assisted in this matter by staff at Exponent, who worked under my direction. My compensation in this matter is not contingent or based on the content of my opinion or the outcome of this or any other matter.

**4. BACKGROUND INFORMATION**

16. The instant case revolves around current technologies for engine tuning. The products at play in this case are software/hardware systems that allow a user to modify many parameters of the function of their vehicles’ engines, and therefore affecting the performance, energy output, fuel economy, driving experience, etc.

17. In order to achieve this, engine tuning systems are typically able to: (a) decide what kinds of Engine Control Units (ECUs) they need to communicate with, (b) establish communication with these ECUs, (c) measure the current settings of the parameters of interest, (d) display said parameters to the user, (e) either calculate new parameters based on user inputs or allow the user to enter directly their new desired parameters, (f) write the new parameters back to the vehicle’s ECUs effectively modifying the vehicle.

18. These steps require both specialized hardware and software. The software that can be used to display the current parameters, and calculate or allow new ones to be input, can run in a personal computer or laptop. In order to connect a computer to a vehicle’s network, to communicate with its ECUs, it is required to use a physical adaptor, that can translate between the communications available to the computer (e.g. USB, Serial Communications, Ethernet) to those available to the vehicle (typically a Controller-Area Network (CAN) protocol, accessed through an On-Board Diagnostic II (OBDII) connector). The communication mechanisms



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between this adapter and the vehicle may be set by the protocols the vehicle and its ECUs understand, and therefore may be common or similar for all products attempting to communicate with a vehicle. However, there is a significant more freedom to design the communications between the software running on the personal computer and the custom-designed adapter. This can lead to arbitrary implementations of custom communications protocols.

19. A particularly critical step in the process of engine tuning is writing the desired parameters to the vehicle ECU. For this step it is required to understand in detail how to communicate with an ECU in order for it to accept the modifications.

20. One of the means used by ECUs to allow themselves to be programmed is by “seed and key.” In summary, the ECU identifies itself to a requester by the type of ECU it is, and by its seed number. From these data, the requester needs to produce a reply number or a key. If this reply or key is correct, the ECU allows its data to be modified by the requester. If the key is incorrect, the reprogramming or modification of the ECU fails. While for each combination of ECU type and seed, there is a unique key, the means or methods to calculate the key from the input data can be varied and diverse.

21. Another critical aspect of communicating and modifying an ECU program is “checksumming” or a specific process for “signing” a program so that an ECU will accept it as valid. In order to check for errors or memory corruption each ECU stores together with its data and program a checksum, or some additional data that can be calculated from the rest of the data. In order to be valid, the checksum stored with the data needs to match with the checksum calculated by the ECU for that specific data. For each possible set of data and ECU type there is a unique checksum that should be stored together with the data. However, the methods to calculate do not need to be the same and may vary from implementation to implementation.

22. These communication processes with ECUs may also involve what in the art are called “magic numbers.” These are arbitrary numbers that are necessary to know in order to

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communicate with the ECU. These numbers depend on the ECU type, and are not the result of a calculation, but are fixed for each ECU. These numbers do need to be the same in all cases for a given ECU, regardless of implementation. Without knowledge of the appropriate magic number, communication with an ECU may be impossible.

**5. SYKED HAD ACCESS TO HPT INTELLECTUAL PROPERTY.**

23. There is significant amount of evidence that supports the opinion that Syked had access to HP Tuners IP. First, Mr. Sykes-Bonnett indicates this to be the case in several conversations with third parties: For example he states to Cristopher Breton-Jean “I have the source code for the licensing now” referring to VCM Suite source code; Sykes-Bonnett also states to Christopher Breton-Jean, regarding an administrative version of HPT software: “Figure out what you want and I will make it happen for you. You know I don't need it cause I already have admin version that's legit ;)”; Also, Sykes-Bonnett tells Christophe Breton-Jean, regarding HPT software: “I can write firmware and eeprom.” “I have all the code.” “It’s same firmware.” [See files labeled “KSB Message with code to CBJ 1.png” through “KSB Message with code to CBJ 4.png”, see also files labeled “MK Abstract Timeline for Exponent.docx” and “MK Abstract - Sykes-BretonJean FB Comms.docx”.] These are just examples, but there are more references to code Mr. Sykes-Bennett had access to and used in the cited documents.

24. In the sections below I present examples of Syked using the IP of HP Tuners for their own advantage, as well as disclosing it to third parties. It is necessary for Syked to first have access to this IP in order to use it or disclose it. It follows that at some point in time prior to using or disclosing the protected IP of HP Tuners, Syked gained and retained access to this IP.

**6. SYKED DISCLOSED HPT IP TO THIRD PARTIES.**

25. Syked disclosed HP Tuners source code to third parties via electronic means. For example, there are Facebook chat logs showing Mr. Sykes-Bonnett sharing several pages of HP Tuners’ source code with Mr. Christopher Breton-Jean. [See files labeled “KSB Message with code to CBJ 1.png” through “KSB Message with code to CBJ 4.png” showing the chat log; see files “HP Tuners VCM Editor 2.23 Source Code - DCX\_NGC3.png” and “HP Tuners VCM Editor

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2.23 Source Code - GM\_VPW\_V8\_97\_98\_512.png” from HP Tuners source code file “cControllers.cs.” Note that even comments coincide.]

26. Additionally, Syked shared HP Tuners’ files with third parties via electronic means. For example, there are Facebook chat logs showing Mr. Sykes-Bonnett sharing files labeled in part “VCMEditor” with Christopher Breton-Jean. [See files labeled “KSB to CBJ Admin version1.png” through “KSB to CBJ Admin version5.png”.] It is important to note that “VCM Editor” is the name of an HP Tuners’ software product, and I did not find any similarly-named product or files in Syked’s source code.

27. Furthermore, Syked shared HP Tuners’ software application keys with third parties via electronic means. For example, there are Facebook chat logs showing Mr. Sykes-Bonnett sharing HP Tuners application keys with Christopher Breton-Jean. [See files labeled “MK Abstract Timeline for Exponent.docx” and “MK Abstract - Sykes-BretonJean FB Comms.docx”] As explained further below application keys and the means to generate these keys are IP that is typically guarded and protected. Otherwise, software product developers would not be able to protect themselves from software piracy or to effectively sell or license a product.

**7. SYKED USED HPT IP: SOFTWARE KEYS**

28. Syked used several types of HP Tuners’ IP for their benefit. One said type of intellectual property are application software keys, and the tools necessary to generate these keys. In order to protect their software product, HP Tuners utilizes application software license keys in order to prevent unauthorized use of their application. This key consists of a string of letters and numbers, that is associated with the serial number of the hardware components of the HP Tuners tuning product. The appropriate key is necessary in order to run the application successfully. Additionally, each key is associated with the particular activities that can be undertaken with the application. E.g., a particular key may allow the user to tune a Ford vehicle, while a different one may be necessary to tune a Dodge vehicle. In order to create an application license key for a particular hardware connector and enable the desired capabilities

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of the HP Tuners’ application a special software product, called a key generator, is necessary. This product is not meant to be accessed by any user or general member of the public, and is supposed to be run exclusively by HP Tuners authorized personnel.

29. As can be seen in the chat logs, Mr. Sykes-Bonnet repeatedly provides license keys to Cristopher Breton-Jean, and eventually admits that he has access to the key generator and is using it to create virtually unlimited license keys. He also admits to having the licensing source code for HP Tuners’ products. He is clearly using these keys generated without authorization in order to run unauthorized versions of HP Tuners’ applications to facilitate research and development efforts. [See files labeled “MK Abstract Timeline for Exponent.docx” and “MK Abstract - Sykes-BretonJean FB Comms.docx”.]

**8. SYKED USED HPT IP: COMMUNICATIONS PROTOCOLS**

30. As discussed above, the software used to display current ECU parameters or calculate new parameters to be input into the ECU can run on a personal laptop or computer. In order for this computer to communicate with a vehicle ECU, it must connect with a physical adapter. The options for communication protocols between the adapter and the ECU are rather limited. However, communication protocols between the personal laptop or computer and the physical adapter can vary more significantly and include custom communication protocols. HPT developed a custom communications protocol.

31. In my review of the Syked source code I found that Syked interfaced with HPT hardware. The variable ftStatus used by Syked in their cable communication file “Cls\_Cable\_Communication.cs” in the repository dated 2017-05-16 contains direct reference to the HPT hardware:

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32. This code is used when a new USB device is detected to determine whether it is a valid connection it should be able to manage. The code above shows that connections it should be able to manage include connections to hardware labeled “HPT00021A” and “HPT00021B”. I discussed with HPT personnel and confirmed that these labels correspond to HPT cables.

33. To interface or communicate with HPT hardware would have required use of HPT’s communication protocols. Therefore, to conduct these communications that Syked software was able to manage implies that Syked was using HPTs communications protocols.

**9. SYKED USED HPT IP: SEED AND KEY, CHECKSUMMING METHODS AND ALGORITHMS**

34. To enhance vehicle security and protect sensitive information, an ECU is typically equipped with a form of access control, which restricts requester access to the ECU until certain challenges are met. One method of access control uses a “seed and key” method to determine whether read, or write, or access rights should be granted to a requester. In this method, an ECU will reveal a seed value and its ECU type to a requester and will not allow access unless the requester generates the appropriate key in response. If the wrong key is sent in response, reprogramming of the ECU fails. Although the seed and key method requires that any given seed and ECU type will always produce the same key, the method used to generate the key can be varied and diverse.

35. Another aspect of access control used by ECUs are checksums. A checksum is a calculated mathematical value that is used to determine whether a particular block of data (file, transmitted message, etc.) has changed. A checksum is calculated based on the content of the data and there are many methods for performing this calculation. However, in general, small changes to the data will result in large changes to the calculated checksum.

36. An ECU can calculate the checksum of data to determine if the data was modified either maliciously or through hardware or other errors. If an ECU determines that the checksum values calculated based on the data have changed, then it may reject attempts to modify the file, or prevent the vehicle from starting. I observed similarities in the access control

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methods found in Syked source code compared with those in HPT source code. In Syked file “Cls\_SeedKey.cs” in the source code repository dated 2017-10-01, for example, a 32 bit input seed is manipulated to generate the appropriate 32 bit output key, where each is broken into four blocks of eight bits (four separate bytes). Each byte of the input seed is manipulated independently and the result is written to a specific byte of the output key. An unusual part of this process is the order in which the bytes are manipulated and written. In both the Syked and HPT code (in functions ConvertSeedKeyChryslerLevel 1 and ConvertSeedKeyChryslerLevel5) we find the exact same ordering, which is not a natural ordering, such as one based on increasing or decreasing position.

37. There are many methods for calculating keys based on input seed values. During my inspection of the source code, I found that the seed and key method used by Syked was the same as the method used by HPT, including the ordering of the byte processing as described above. This seed key method is used in the function zf\_seed\_algo in Syked source code. There are Facebook chat logs showing requests and delivery of a seed key algorithm with ZF8 transmission support. [See files labeled “MK Abstract Timeline for Exponent.docx” and “MK Abstract - Sykes-BretonJean FB Comms.docx”.]

**10. SYKED USED HPT IP: DEVELOPED THEIR OWN CODE WHILE REVIEWING HPT CODE**

38. It is evident from the records that Syked actively used HP Tuners code and software products to assist in developing their own. See for example Mr. Sykes-Bonnett asking Christopher Breton-Jean to patch a particular version of the HP Tuners software that includes support for the ZF8 transmission: “can you patch this one. A few version newer and has zf8 in it. Pls.”; also Mr. Sykes-Bonnet explaining the Mr. Martinson is using HP Tuners cables to “get the writing working” in Syked products. These are just examples of places where it is clear that Syked is using HP Tuners IP in the development of their own products, but not an exhaustive list. [See files labeled “MK Abstract Timeline for Exponent.docx” and “MK Abstract - Sykes-BretonJean FB Comms.docx”.]

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39. Possession and reference to HP Tuners confidential information and trade secrets provided a springboard to jumpstart the development process, significantly shortening the research and development costs and times for Syked. Having access to these materials may have provided benefits to Syked in addition to directly copying code: having the HP Tuners source code and/or software application and being able to run it allows Syked to compare and benchmark, not only the final results, but intermediate steps too, facilitating development, and significantly shortening iteration time and cycles. Having a working solution for aspects of the software product would allow an engineer to quickly identify areas of concern, priorities, pitfalls, etc, as well as a plethora of ideas to solve stumbling blocks he might find when writing code.

**11. SYKED, BY ACTIONS OR OMISSIONS, IMPEDED MY INVESTIGATION**

40. A particularly significant step for my investigation was the inspection of Syked source code that was scheduled and took place in Seattle, WA, over three days on April 3, 4, and 5. During that inspection, I expected to be able to review source code from Syked source code repository that represented the status of the Syked software products at different points in time, that I had selected based on the facts of the case and on documents produced by the parties during the litigation.

41. Among others, some of the documents that I reasonably expected to review in preparation for the inspection are source code repository changesets. These documents contain list of the files added or modified at each point in time when the source code was stored in the repository. Having access to these documents could have allowed me, for example, to select dates when files of interest to this case were first added or modified, and before they could have been removed or modified. Defendant’s counsel produced to me a set of unredacted changesets on March 8, 2019. [See 3/8 email from Phil Mann.] These changesets contained a total of 499 pages and recorded changes between March of 2017 and September of 2018.

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42. However, an additional changeset containing a total of 723 pages and recording changes between January of 2014 and May of 2017 was only produced to me by Defendant’s counsel on April 3, 2019, after the first day of the inspection. [See 4/3 email from Phil Mann.] Given the timing and size of the production I was only able to obtain very limited information that I could apply for the inspection.

43. Additionally, as stated above, it was my reasonable expectation that I was going to be able to review the source code as it existed in different points in time. It is my understanding from email exchanges between the parties as well as phone conversations between the parties and myself that I was going to request the source code as it existed in the points selected by me, and it would be downloaded from the repository into to computer that I was going to use for the review, while I would witness the process. The situation that I found when I arrived at the location for the inspection was very different from what I understand was agreed: Some Syked source code corresponding only to the present version of parts of the software products was already loaded onto the review computer. When I requested the code from the points in time of interest to me, I was informed that Syked was not aware of how to achieve this. I spent a critical amount of inspection time researching this topic and sharing options with Syked. The code from different points in time only became available after noon of April 4, basically at the half point of the allotted inspection period. This had a severe impact on the breadth and depth of the inspection.

44. Furthermore, an additional section of source code referred to as “server” code was never identified prior to the inspection. Only during the first day of my inspection did I find references to a remote server in the source code. Server code was finally produced upon my request during the second half of the second day of the inspection.

45. Given the issues explained above, the effective time for the inspection was significantly reduced by Defendant’s actions and omissions. Any of the issues presented by Defendant during the inspection could have and should have been addressed prior to the inspection, allowing for the full time there to be used effectively and efficiently reviewing the relevant source code.



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**12. CONCLUSIONS**

46. In my opinion, the Defendants had access to the Plaintiffs intellectual property, disclosed it to third parties, and used it both by copying it into their own products, to reference it while writing their own software, and to run unauthorized versions of the Plaintiffs’ products to aid in Syked research and development efforts.

47. Furthermore, while evidence of a significant amount of use of the intellectual property is already supported by the evidence, actions or omissions by the Defendants hampered my efforts during the source code inspection. Additional inspections may still show more extensive use of HP Tuners’ IP in Syked products.

48. I have based my analyses and conclusions on currently available information. If I receive additional or different information, I reserve the right to review and, if necessary, change my analyses and opinions.

Executed this \_\_22\_\_ of \_\_\_\_April\_\_\_\_\_, 2019\_\_



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Dr. Ernesto Staroswiecki

April 22, 2019

## **Attachment A: Materials Reviewed**

- Notes from Exponent inspection of Syked source code
- Conversations with Keith M. Prociuk and Ion Soltan of HPT
- HP Tuners VCM Editor 2.23 Source Code - DCX\_NGC3.png
- HP Tuners VCM Editor 2.23 Source Code - GM\_VPW\_V8\_97\_98\_512.png
- KSB Message with code to CBJ 1.png
- KSB Message with code to CBJ 2.png
- KSB Message with code to CBJ 3.png
- KSB Message with code to CBJ 4.png
- KSB Possession of 2.23 source code DCX\_NGC3.png
- KSB Possession of 2.23 source code GM\_VPW\_V8\_97\_98\_512.png
- KSB to CBJ Admin version1.png
- KSB to CBJ Admin version2.png
- KSB to CBJ Admin version3.png
- KSB to CBJ Admin version4.png
- KSB to CBJ Admin version5.png
- MK Abstract - Sykes-BretonJean FB Comms.docx
- MK Abstract Timeline for Exponent.docx



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Engineering & Scientific Consulting

## Ernesto Staroswiecki, Ph.D., P.E.

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### Professional Profile

Dr. Staroswiecki's expertise is in microelectronics and computing systems. He leverages his broad experience and educational background, including degrees in Mathematics and Statistics, Computer Engineering, and Electrical Engineering, to solve a wide variety of problems in consumer electronics, appliances, vehicles, medical devices, and safety-critical applications. He has experience in design, development and manufacturing processes, failure analysis, quality, and reliability of software products, microelectronic circuits, and discrete components.

Dr. Staroswiecki is a Licensed Professional Electrical Engineer and a Certified Software Quality Engineer. He has extensive experience in software engineering and software development processes, and has assisted clients in design, testing, verification, validation, documentation, auditing, and reviewing code for litigation, due diligence, compliance, development, and failure analysis. Dr. Staroswiecki specializes in embedded, safety-critical applications, and is well versed in several programming languages and environments, including Assembly, C, C++, C#, Java, MATLAB, etc.

Dr. Staroswiecki has conducted failure analysis in a range of devices and components including printed circuit boards, handheld devices, industrial robots, capacitors, computers, power adapters, integrated circuits, fuses, high voltage transformer, and other electrical equipment. He has investigated root causes of incidents ranging from intermittent, rare, noise generating events, to situations involving thermal events and loss of property.

During his graduate work at Stanford University, Dr. Staroswiecki worked on Magnetic Resonance Imaging (MRI) techniques, including image and signal processing, MRI physics and safety, and medical device software. He also worked on Very Large Scale Integration (VLSI) design and testing. Dr. Staroswiecki also has previous professional experience in design for testability, manufacturing yield learning, and software development for database and internet-based applications.

### Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, Stanford University, 2012

M.S., Electrical Engineering, Stanford University, 2005

B.S., Computer Engineering, University of Maryland, summa cum laude, 2002

B.A., Mathematics and Statistics, University of Maryland, summa cum laude, 2002

Young Investigator Award (co-author) from the Society of Computed Body Tomography and Magnetic Resonance (SCBT/MR), 2011

Cum Laude Award from the Society of Computed Body Tomography and Magnetic Resonance (SCBT/MR), 2009

Lauterbur Award from the Society of Computed Body Tomography and Magnetic Resonance (SCBT/MR), 2008

Member of Tau Beta Pi Engineering Honor Society

### Licenses and Certifications

Licensed Professional Electrical Engineer, California, #20891

Certified Software Quality Engineer, #5836

### Prior Experience

Technical Co-op with Test Technology Group, Intel, 2004

Technical Co-op with Software Alliance Group, IBM, 2003

Technical Co-op with Tools and Technology Department, IBM Research, 2002

Design Engineer Technician with CAD Group, ATMEL, 2000-2002

Database Web Developer, AIT, 1999-2000

Lead Software Developer, PRIMA S.A., 1997-1998

Managing Partner, Comunicacion Interactiva S.R.L., 1994-1997

### Professional Affiliations

Member of International Society for Magnetic Resonance in Medicine — ISMRM (2006-present)

Member of Institute of Electrical and Electronic Engineers — IEEE (2000-present)

### Languages

Spanish

Portuguese

Italian

French

Hebrew

### Patents

Granlund KL, Staroswiecki E, Hargreaves BA. T2-Weighted and diffusion-weighted imaging using fast acquisition with double echo. U.S. Patent Pending.

## Publications

Staroswiecki E, Granlund KL, Alley MT, Gold GE, Hargreaves BA. Simultaneous estimation of T2 and ADC in human articular cartilage in vivo with a modified 3D DESS sequence at 3 T. *Magnetic Resonance in Medicine*, in press.

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